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उच्च तद्रूपता वाले श्रव्य उपस्कर एवं तंत्र: न्यूनतम कार्यकारिता अपेक्षाएँ

भाग 6 माईक्रोफोन

(पहला पुनरीक्षण)

Indian Standard

HIGH FIDELITY AUDIO EQUIPMENT AND SYSTEMS: MINIMUM PERFORMANCE REQUIREMENTS

PART 6 MICROPHONES

(First Revision)

ICS 33.160.50

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

November 2001 **Price Group 3**

Acoustics Sectional Committee, LTD 5

NATIONAL FOREWORD

This Indian Standard (Part 6) (First Revision) which is identical with IEC 60581-5(1981) 'High fidelity audio equipment and systems; Minimum performance requirements — Part 5: Microphones' issued by the International Electrotechnical Commission (IEC) was adopted by the Bureau of Indian Standards on the recommendation of Acoustics Sectional Committee and approval of the Electronics and Telecommunication Division Council.

This standard was first published in 1984 and was technically equivalent to IEC 60581-5(1981). This revision has been undertaken to completely harmonize it with the corresponding IEC Standard. It is now identical with IEC 60581-5. The text of the IEC Standard has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are, however, not identical to those used in the Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a full point (.) as the decimal marker.

Only the English language text of the International Standard has been retained.

CROSS REFERENCES

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated :

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
IEC 268-4 Sound system equipment — Part 4 : Microphones	IS 9302 (Part 3):1981 Characteristics and methods of measurement for sound system equipment: Part 3 Microphones	Technically Equivalent
IEC 268-15 Sound system equipment — Part 15: Preferred matching values for the interconnection of sound system components	IS 9302 (Part 10):1980 Characteristics and methods of measurement for sound system equipment: Part 10 Preferred matching values for the interconnection of sound system components	do
IEC 581-1 High fidelity audio equipment and systems : Minimum performance requirements — Part 1 : General	IS 9551 (Part 1) : 2001 Specification for high fidelity audio equipment and systems: Part 1 General (*first revision*)	do

The technical committee responsible for the preparation of this standard has reviewed the provisions of the following International Standard and has decided that it is acceptable for use in conjunction with this standard :

IEC 268-11 Circular connectors for interconnection of sound system components

Indian Standard

HIGH FIDELITY AUDIO EQUIPMENT AND SYSTEMS: MINIMUM PERFORMANCE REQUIREMENTS

PART 6 MICROPHONES

(First Revision)

1. Scope

This part applies to microphones, primarily intended for high quality reproducing systems for home use.

2. Object

To lay down the minimum requirements for microphones falling within the scope of this part.

3. Measuring conditions

All measurements shall be made in accordance with the general measuring conditions stated in IEC Publication 581-1, Part 1: General, and with the conditions of measurement given in Section One of IEC Publication 268-4: Sound System Equipment, Part 4: Microphones.

SECTION ONE – MINIMUM REQUIREMENTS FOR CHARACTERISTICS DIRECTLY RELATED TO THE REPRODUCING QUALITY

4. Frequency response

Introduction

The frequency response requirement is defined in two stages: a type frequency response is specified and then the permissible deviations of the response of an individual microphone from that type frequency response. This is because the type frequency response may not be intended to be flat, for example a so-called soloist's microphone.

Clause or sub-clause	Characteristic	Method of measurement	Minimum requirement
4.1	*Frequency range*	According to IEC Publication 268-4, Clause 12	From 50 Hz to 12 500 Hz
4.2	*Type frequency response*		The *type frequency response curve,* stated by the manufacturer, which shall be the mean frequency response of microphones of that type, shall fall within the masks for omnidirectional or directional microphones (as appropriate) given in Figures 1 and 2, page 5 *Note.* – If the claimed frequency range is wider than the minimum requirement of 50 Hz and 12 500 Hz, the tolerance limits shown on the masks of Figures 1 and 2 at 50 Hz and 12 500 Hz still apply for frequencies outside the minimum requirement
4.3	*Frequency response of an individual microphone*		The *frequency response curve* of any *individual* microphone shall correspond to the type frequency response curve within the following tolerances: 50 Hz-250 Hz ±3 dB 250 Hz-8 000 Hz ±2.5 dB 8 000 Hz-12 500 Hz ±3 dB Over the frequency range 250 Hz-8 000 Hz, the slope of the curve shall not exceed 6 dB/octave, and for lower and higher frequencies up to the limit frequencies specified for the frequency range it shall not exceed 9 dB/octave *Notes 1.* – Peaks and troughs in the frequency response curve not exceeding a frequency range corresponding to 1/8 octave shall be neglected with respect to the requirements for maximum admissible slope. *2.* – If the claimed frequency range is wider than the minimum requirement of 50 Hz and 12 500 Hz, the tolerance of ±3 dB still applies

Clause or sub-clause	Characteristic	Method of measurement	Minimum requirement
5.	**Difference between the sensitivities of microphones used for stereophony**	Sensitivity measurement according to IEC Publication 268-4, Sub-clauses 10.1 and 10.2.1	The sensitivity obtained for stereo microphones or microphones of the same type intended to be used in stereophonic installations shall be such that the average sensitivities, corresponding to each of the 1/3 octave frequency bands whose central frequencies lie between 250 Hz and 8 000 Hz inclusive, do not differ by more than 3 dB from one microphone to the other for the same 1/3 octave frequency band
6.	**Directional pattern**	According to IEC Publication 268-4, Sub-clause 13.1	*Omnidirectional microphone* The difference between the maximum and minimum values of the expression $20 \log_{10} \dfrac{U(\theta)}{U(\theta=0)}$ dB in IEC Publication 268-4 Sub-clause 13.1*a)* (7) for values of θ between 0° and 90° shall not exceed: 2 dB below 1 000 Hz 4 dB between 1 000 Hz and 5 000 Hz 8 dB between 5 000 Hz and 8 000 Hz *Directional microphone* The off-axis frequency response between 250 Hz and 8 000 Hz shall not deviate by more than ± 4 dB from the axial response, a transfer to equalize the values obtained at 1 000 Hz being carried out previously Where the response at any angle and frequency is more than 12 dB below the axial response at the same frequency, the deviation of the response at that angle and frequency shall be neglected
7.	**Front-to-random sensitivity index (for directional microphones only)**	According to IEC Publication 268-4, Sub-clause 13.2	$\geqslant 3$ dB within the frequency range 250 Hz-8 000 Hz
8.	**Overload sound pressure**	According to IEC Publication 268-4, Sub-clause 14.2	For sound pressure levels up to 114 dB (ref. 20 µPa), the total harmonic distortion shall not exceed 1% within the frequency range 250 Hz-8 000 Hz
9.	**Rated equivalent sound pressure level due to inherent noise**	According to IEC Publication 268-4, Sub-clause 15.1	$\leqslant 26$ dB (ref. 20 µPa) noise A-weighted

Clause or sub-clause	Characteristic	Method of measurement	Minimum requirement
10.	**Free-field sensitivity**	According to IEC Publication 268-4, Sub-clauses 10.1 and 10.2.1	The sensitivities of individual microphones of a predetermined type shall not differ by more than ±3 dB from the rated sensitivity at 1 000 Hz specified by the manufacturer for the relevant type

SECTION TWO – OTHER CHARACTERISTICS AND REQUIREMENTS

Clause or sub-clause	Characteristic	Method of measurement	Minimum requirement
11.	**Interconnection**		
	a) Mechanical		According to IEC Publication 268-11
	b) Electrical		According to IEC Publication 268-15 *Note.* – In this publication, standard values are given for rated sensitivity, rated impedance and rated load impedance
12.	**Characteristics to be specified**		The characteristics listed in this part are mandatory in the manufacturer's manual or descriptive leaflet and technical specifications The requirements of Clause 20 of IEC Publication 268-4 should also be observed The manufacturer shall also specify the function of any switches or controls on microphone or associated equipment

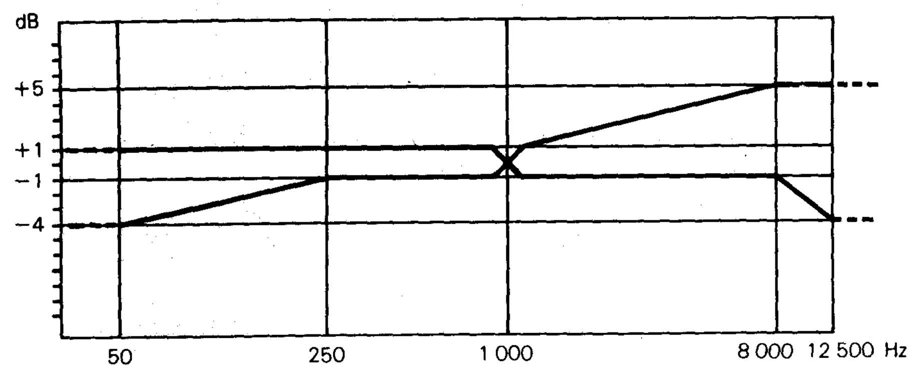

FIG. 1. — Omni-directional microphones.

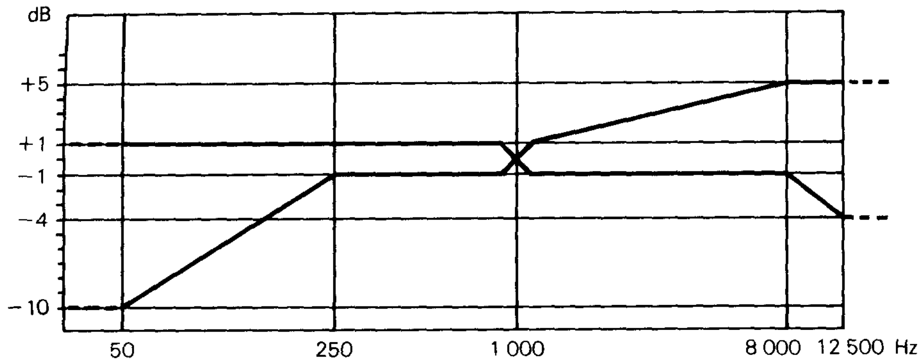

FIG. 2. — Directional microphones.

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